about 1 in. (2.5 cm.) across, with moderate sepsis. He was treated with prophylactic anti-tetanus serum 1,500 units, crystalline penicillin, and painting with gentian violet, exposing the abdomen. (This is our routine treatment for babies with septic umbilicus admitted usually about a week after birth, and often with cellulitis of the whole abdominal wall.)

On the fifth day I was called to see him as a loop of intestine was protruding through the wall of the sac. In the theatre the intestine was washed and replaced in the abdominal cavity. The sides of the abdomen were pressed, causing

the hole to close, and, after covering it with sterile gauze, continuous Elastoplast strapping was bandaged round the baby. This was left undisturbed for two weeks and then changed.

He was discharged well on 1 August 1962. He was last seen on 1 October 1964, when he was well, with an apparently normal umbilicus and no hernia.

—I am, etc.,

Joint Hospital,
Agwu, E. Nigeria.

ANNE SEYMOUR.

Unightly Tooth-destruction by Isoprenaline Sulphate

SIR,—I wish to record a case history of a 12-year-old girl whose permanent teeth have been disfigured by prolonged contact with isoprenaline sulphate tablets used in the symptomatic treatment of asthma.

A female patient, aged 12 years, presented with unsightly discoloration and destruction involving her permanent incisor and canine teeth, immediately apparent with every lip-parting movement. The affected teeth $\frac{321}{7}$ were discoloured a chalky white with a loss of the natural enamel translucency, involving the labial surfaces of $\frac{3}{23}$, the labial cervical margins of $\frac{21}{12}$, and mildly involving the buccal cervical margins of $\frac{1}{7}$. The $\frac{3}{3}$ also showed pitting deficiencies of their labial surfaces exposing the brown-stained underlying dentine (Fig. 1). The whitened opaque areas were soft; scraping with a steel instrument removed a chalky material, leaving underlying hard, rough enamel. At the age of 6 years, apparently related to the removal of her tonsils and adenoids, she had developed asthma, for the symptomatic treatment of which she had received oral isoprenaline tablets in varying doses three times daily since the onset of the condition six years ago. She had developed an unfortunate trick of manoeuvring the tablet, placed sublingually as instructed, into the left labial sulcus with her tongue; here the tablet then lay slowly disintegrating in contact with the canine teeth.

It was thought that the prolonged local contact of acid substance resulting from the slow disintegration and solution of the isoprenaline sulphate tablets with the teeth was responsible for the enamel destruction. A 20 mg. tablet of isoprenaline sulphate dissolved in 10 ml. of distilled water gave an

approximate reading of pH 4 with B.D.H. wide-range indicator paper. Two extracted premolar teeth with a wax covering to their roots were placed in a beaker and covered with distilled water in which was dissolved a 20 mg. tablet of isoprenaline sulphate. This water and tablet were changed daily for two weeks, when the enamel of the crowns was found to be opaque and white. One specimen was scraped with a steel instrument, removing

FIG. 2.—A. Untreated enamel. B. Enamel opaque white and chalky. C. White chalky material scraped away leaving rough, hard enamel. B and C immersed in solution of isoprenaline sulphate for two weeks.

a soft chalky white material and leaving a hard roughened enamel surface. The two experimental teeth were then photographed beside an untreated extracted premolar tooth (Fig. 2).

The opaque chalky white appearance, the ease of its removal, the underlying roughened

enamel then remaining, all closely resembled the clinical findings and suggest that the contact of the isoprenaline tablet with the tooth enamel was responsible for the unsightly tooth destruction.

Acids are known to dissolve tooth enamel¹ below a critical pH of between 5.5 and 6.5, varying from saliva to saliva. No previous report has been found of dental disfigurement related to this particular source of acid. Here prolonged contact in an unfortunate manner arose without knowledge of the prescribing practitioner, and hence when prolonged oral administration of a potentially acid substance is made the patient's administration technique a periodic inspection of the tooth surfaces should be carried out.

I wish to thank Mrs. E. Armour, dispenser, for her experimental work.

—I am, etc.,

Edinburgh Dental Hospital, JOHN S. BALL.
Edinburgh 1.

REFERENCE

Jenkins, G. N., *The Physiology of the Mouth*, p. 226, 2nd ed., 1960. Blackwell, Oxford.

Pet-transmitted Disease

SIR,—I wonder how often poor kitchen hygiene associated with the keeping of pets is a concealed source of household infection. Many dogs harbour salmonella, and there is a long list of less common but more serious conditions.

Cleaning adherent particles and fat from a dog's feeding bowl is a fussy little chore, needing a separate cloth, detergent, hot water, and a clear sink. I find, on inquiry, that most people manage to mix it up with the domestic washing up at some point or other. Some others with a lively sense of hygiene feel obsessive if they do the job properly, and uneasy if they do it sloppily.

It would seem to me a simple and economical idea to put up pet foods in round, flat tins, like some present steak-pie tins, so that they could become disposable feeding bowls when suitably opened. Several types of wall and hand opener produce a perfectly smooth sealed edge to the opened tin.

A disposable dish would not answer all the problems by any means (disposable pets might be safer!) but would be a reasonable step forward, and could be commercially rewarding.—I am, etc.,

Sutton, Surrey.

E. SAPHIER.

FIG. 1.—White opacities of $\frac{23}{23}$ showing also pitting deficiencies of $\frac{3}{3}$.

Paterson-Kelly Syndrome in Adolescence

SIR,—The letter from Mr. F. Bauer (3 April, p. 924) highlights the problem of definition, which must be considered carefully in discussing the Paterson-Kelly syndrome. The strictest definition, confining the syndrome to its most severe form, results in a distorted view of the natural history of the condition. In our case reports (13 March, p. 693) we did not imply that these adolescents had rigid strictures in the hypopharynx. They certainly had dysphagia and equally certainly showed the x-ray appearances described by radiologists as webs.

It is common experience that when some patients with unequivocal "radiological" webs are oesophagoscoped no web can be seen.

This is possibly because some webs are not rigid structures and may be "ironed out" or ruptured by the oesophagoscope. Most webs which can be biopsied consist merely of a fold of normal oesophageal mucosa.¹ Perhaps some webs are transient structures only formed during the physiological act of swallowing. We did not feel that oesophagoscopy would have helped in the management of our cases.

Although the correlation between radiological and directly visualized webs is not good, particularly in the case of flimsy webs, it is unlikely that the two phenomena are unrelated. It seems equally unlikely that rigid post-cricoid webs suddenly appear *de novo* without having first passed through a less extreme stage of development.

We should like to suggest that the rigid resistant post-cricoid webs seen by Mr. Bauer may have been preceded at some time by less rigid webs and that there may have been a time when his patients had no webs at all. Our cases indicate that the onset of the disease process may occur during adolescence.—We are, etc.,

M. D'A. CRAWFURD.

University College,
London W.C.1.

A. JACOBS.

Welsh National School of
Medicine,
Cardiff.

B. MURPHY.

Charing Cross Hospital
Medical School,
London W.C.2.

D. K. PETERS.

Welsh National School of
Medicine,
Cardiff.

REFERENCE

- ¹ Entwistle, C. C., and Jacobs, A., *J. clin. Path.*, 1965, in press.

practitioners have admitting privileges to the local hospital, which has approximately 200 beds and is less than three years old.

This service is not considered exceptional in this size of population centre and is naturally available in all larger centres. Smaller centres usually have the services of a visiting radiologist and pathologist on a weekly basis.

These facilities are considered basic to good medical practice, and, in my opinion, result in a standard which would be very hard to beat anywhere in the world. My only regret is that this "Utopia" is presently threatened by the political planners, who seem to be incapable of appreciating the natural evolution of good medical practice. To those who would claim that this type of medicine is only available to those with the financial ability to pay I would like to point out that over 70% of the population in this province are covered by pre-paid medical plans which pay all of their medical bills, including investigations. The remainder of the population are either able to pay, are subsidized by social welfare, or are not billed by the medical practitioners, who are very happy to accept the very light burden thus thrust upon them.

I would suggest that a combination of the "fee-for-service" principle of remuneration and a minimum of bureaucratic involvement are the basic conditions necessary for the development of this system. This feeling is shared by the vast majority of the medical profession in Canada and goes a long way to explaining the considerable opposition expressed by the profession to any universal, compulsory, Government-run medical plan.—I am, etc.,

Nanaimo, B.C.,
Canada.

M. J. SMART.

Improving Ambulance Services

SIR,—I feel that a reply is necessary to the two letters published in the *B.M.J.* from Dr. E. F. D. Gawne (23 January, p. 247) and Mr. D. Lamont (27 March, p. 861) criticizing the ambulance services.

Virtually all ambulance services are now radio controlled. Resuscitation apparatus of the "Novox" and/or "Minuteman" type and airway tubes are provided as a matter of standard equipment.

Throughout the country it is well recognized that ambulance men's work is not confined to stretcher carrying and driving a vehicle as fast as possible—after all, the ambulance man is often the first person to attend to a casualty, and chance of survival may depend upon his knowledge, experience, and training, and the use he can make of these in an emergency.

In Cheshire not more than 10% of candidates for ambulance driving posts are considered for appointment, and those selected are subjected to a police driving examination before taking up duty; approximately one-third fail this last test.

I would suggest that if your correspondents came to the Cheshire Training Unit, through which 200 ambulance men have passed, they would see intensive training carried out by consultants, general practitioners, public health medical officers, and ambulance staff, with special attention paid to blood loss, resuscitation, maintenance of airways, and the handling of severely ill or injured patients.

Field trials are now being carried out in the north of England with portable suction apparatus to be carried in ambulances and with the use of pneumatic splints.

I hope that this reply will show your correspondents that modernization is far advanced in the field of ambulance work, and that "dash and grab" is obsolete.—I am, etc.,

ARNOLD BROWN,

C.M.O.H., Cheshire,
Chairman, B.M.A. Public Health Committee.
County Hall,
Chester.

Treatment of Cervical Spondylosis

SIR,—The multicentre trial of the physical treatment of cervical spondylosis reported by Dr. P. J. R. Nichols at the Annual General Meeting of the British Association of Physical Medicine (27 March, p. 852) is to be welcomed.

However, a very important point arises from the trial—as it was reported—namely, that the disorder itself was not clearly defined. Is cervical spondylosis a clinical diagnosis? Surely it represents a radiological appearance of a degenerative process or processes. The important question is whether the radiological changes are responsible for the patient's pain. I consider that naming "spondylosis" as a cause of pain is as vague as calling "fibrositis" a cause of pain.

I do not consider that spondylosis *per se* gives rise to pain. This must arise from some complication such as disk protrusion, painful capsulitis, pressure on the dural cuff of a nerve root, or possibly interference with the mobility of a lateral facet.

Many patients over 50 years of age have painless limitation of movement of the neck, and radiologically they have "spondylosis." They may also have narrowing of a disk space and yet no pain. Lord Brain raised important questions here. "Why do changes come on acutely?" An acute attack of pain surely is not due to the "spondylosis" but to an additional mechanical lesion; when this is cleared up the pain ceases, but the "spondylosis" remains. I think the same answer applies to his other question, "Why was the pain unilateral when the radiological changes were symmetrical?"

Another question arises from this trial. It was stated that all cases "were complicated by root compression and pain in the arm." It would help in assessing the efficacy of the treatment to have known whether the root compression had caused signs of neurological abnormality, such as weak muscles. The reason for this is that if a disk protrusion has interfered with nerve conduction, as shown by weak muscles, recovery from pain occurs in six weeks from the time of the onset of the palsy if no treatment is given.

While writing this letter, a patient consulted me. Her doctor's letter explained that she was suffering from cervical spondylosis with pain in her arm for three years and that many treatments to her neck had done no good. On examination her neck movements were slightly limited but painless. The x-ray showed "spondylosis" and a very narrowed C5-C6 joint space. At the shoulder-joint there was painful limitation of range in all directions, and pain on isometric contraction of her infraspinatus muscle. Treatment of these two conditions should cure her pain,

Wanted, Diagnostic Centres

SIR,—Dr. H. E. Moody (6 March, p. 650) asks whether it is Utopian to expect diagnostic facilities to be made available to general practitioners in England.

Whether or not such facilities are Utopian in England, they are certainly quite commonplace in Canada. The rather typical small town in which I practise as a radiologist serves a population of approximately 45,000. The 13 general practitioners have available to them the services of 20 consultants, including two radiologists and two pathologists. Outpatients requiring radiological investigation are referred by the general practitioner to my office. The average delay for intravenous pyelography or gastro-intestinal investigation is three days. For all other work the patient waits approximately half an hour. An interpretation of the films is available to the referring doctor within 10 minutes if this is desired, and a written report is made within 24 hours. The films are always open to the referring doctor's inspection and consultations about specific films are frequent. A similar service is available for routine pathological investigation. A report is available on biopsy material within 24 hours if the specimen is submitted before noon of the previous day.

Immediate referral to a surgeon or other specialist is always available, and the practitioner has the satisfaction of having made the initial diagnosis and instigated the initial diagnostic investigations. All of the general